

## What is in the Food You Eat?

### Food: Our Body's Source of Energy and Structural Materials

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#### Food

any substance that your body can use for growth, repair and energy

3 classes of energy-yielding nutrients

- proteins
- lipids
- carbohydrates

These are all examples of organic molecules—molecules found naturally in organisms

Made from atoms of oxygen, hydrogen and nitrogen

#### Carbon

the central element of organic molecules

Carbon molecules

have many shapes:

- straight chains
- rings
- large, folded three-dimensional structures

#### Protein

an organic molecule made of chains of amino acids

## Uses of protein

- help chemical reactions
- build structures or form things (hair, fingernails)
- messengers or receivers of messages
- transport molecules
- defend against diseases

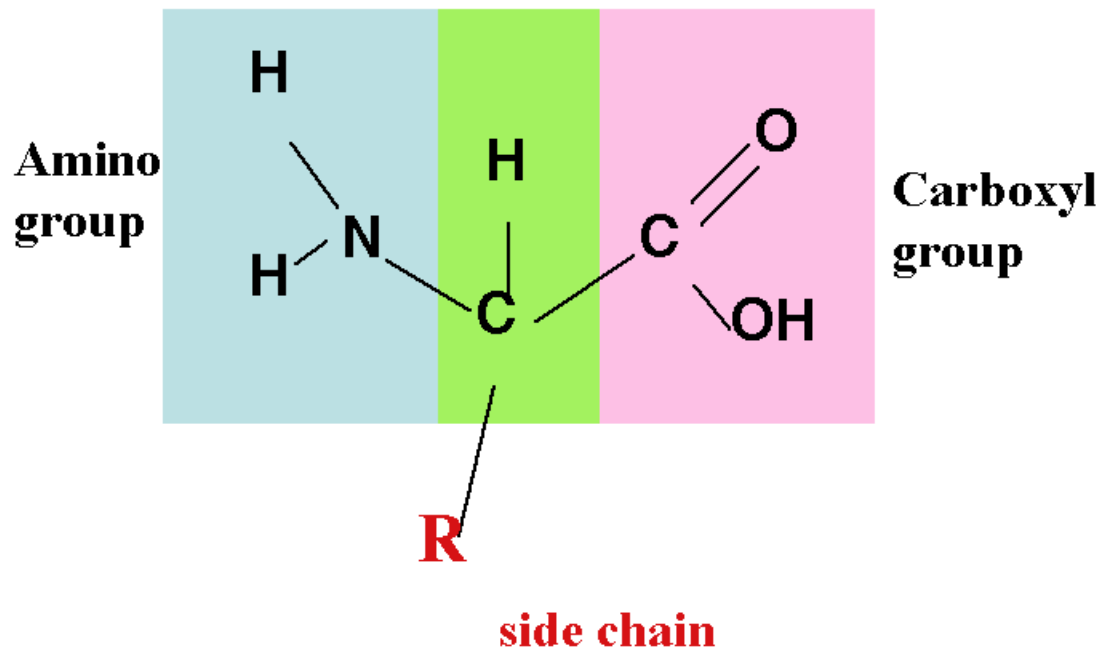
## Amino acid

building blocks of proteins

Made of:

- amino group
- carboxyl group
- side chain

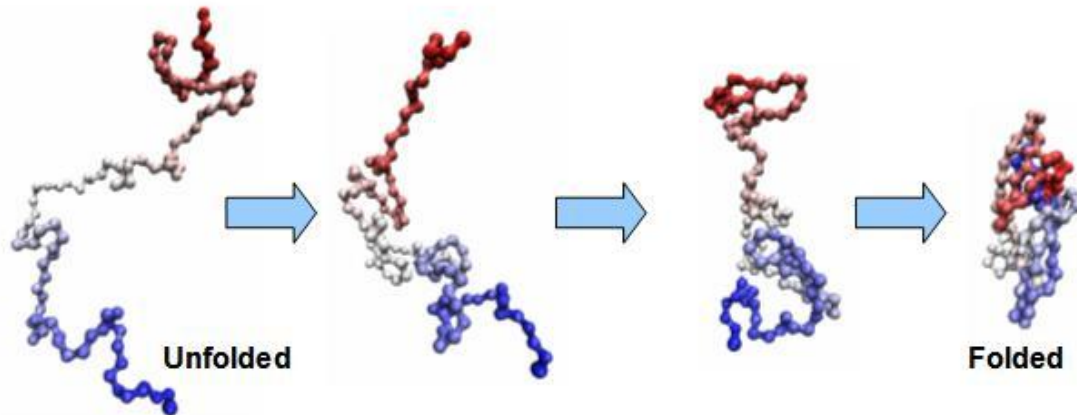
There are 20 amino acids



Amino acids

fold and twist to make three-dimensional shape

The shape determines the job of the protein



8 amino acids

cannot be made by the body and must be obtained from food:

- animals (meat, milk, eggs)
  - plants (grains, nuts, seeds)
- combined with legumes (beans, peas, peanuts)

## Lipids

organic molecules that include fats, oils, waxes, triglycerides and steroids

Do not dissolve in water

Important for:

- making hormones
- making cell membranes
- storing energy

Saturated fats

“bad” fats found in animal products (meat, cheese, butter)

Trans fats


“bad” fats created by adding hydrogen atoms to vegetable oil (helps preserve food)

Found in fried and processed foods (crackers, shortening)

Fats

increase risk of obesity and cardiovascular (heart) disease

Should make up less than 35% of person's daily energy

 Saturated fats—less than 10%

 Trans fats—as low as possible

**Kilocalorie**

a measure of food energy



## Nucleotides

building blocks of DNA and RNA

Nucleotides are made of 3 molecules:

1. Phosphate group
2. 5-carbon sugar unit
3. Nitrogen base

## DNA

has four nitrogen bases:

- cytosine (C)
- guanine (G)
- adenine (A)
- thymine (T)

DNA stores information for making proteins

## Vitamins

regulate cell activities; necessary for growth and life activities

Macromolecule	Building blocks	Functions	Examples
Proteins			
Lipids (fats)			
Carbohydrates			
Nucleic acids			